



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-0961; Directorate Identifier 2011-NE-22-AD]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation Turboprop and Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede airworthiness directive (AD) 2012-14-06, which applies to certain Rolls-Royce Corporation (RRC) 250-C20, -C20B, and -C20R/2 turboshaft engines. AD 2012-14-06 currently requires a one-time visual inspection and fluorescent-penetrant inspection (FPI) on certain 3rd-stage and 4th-stage turbine wheels for cracks in the turbine blades. Since we issued AD 2012-14-06, we determined that the one-time inspection required by AD 2012-14-06 should be changed to repetitive inspections and that we should add an inspection after any engine hot start. We also identified additional engine models subject to the unsafe condition. This proposed AD would replace the one-time visual inspection and FPI with repetitive visual inspections and FPIs, and would also require inspection and FPI after any engine hot start. This proposed AD would also add certain engine models to the applicability. We are proposing this AD to prevent failure of 3rd-stage and 4th-stage turbine wheel blades, which could cause engine failure and damage to the aircraft.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Rolls-Royce Corporation, 450 South Meridian Street, Indianapolis, IN 46225-1103; phone: 888-255-4766 or 317-230-2720; email: helicoptercustsupp@rolls-royce.com; Internet: www.rolls-royce.com. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2011-0961; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: John Tallarovic, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-8180; fax: 847-294-7834; email: john.m.tallarovic@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2011-0961; Directorate Identifier 2011-NE-22-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On June 25, 2012, we issued AD 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012), for certain RRC 250-C20, -C20B, and -C20R/2 turboshaft engines with 3rd-stage turbine wheel, part number (P/N) 23065818, and 4th-stage turbine wheel, P/N 23055944, installed. AD 2012-14-06 requires a one-time visual inspection and FPI on certain 3rd-stage and 4th-stage turbine wheels for cracks in the turbine blades. AD 2012-14-06 resulted from seven cases of released turbine blades and shrouds, which led to loss of power and engine in-flight shutdowns. We issued AD 2012-14-06 to prevent failure of 3rd-stage and 4th-stage turbine wheel blades, which could cause engine failure and damage to the aircraft.

Actions Since AD 2012-14-06 Was Issued

Since we issued AD 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012), investigations of 3rd-stage and 4th-stage turbine wheel blade failures found that the one-time inspection required by that AD was not identifying all failures. We determined that repetitive inspections, triggered by hours since last inspection (HSLI) or any hot start event, are required to address the unsafe condition. We also identified additional engine models that are subject to the unsafe condition, and have added those engine models to the applicability of this AD.

Relevant Service Information

We reviewed RRC Alert Commercial Engine Bulletin (CEB) No. CEB-A-1407, Revision 3, dated May 19, 2014, and CEB No. CEB-A-72-4098, Revision 3, dated May 19, 2014 (combined into one document). The service information describes procedures for inspecting the 3rd-stage and 4th-stage turbine wheels.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would retain the initial inspection requirements of AD 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012). This proposed AD would require repetitive visual inspections and FPIs of the 3rd-stage and 4th-stage turbine wheels based on HSLI. This proposed AD would also require visual inspection and FPI of the 3rd-stage and 4th-stage turbine wheels whenever an engine hot start occurs. We have added the requirement for opportunity inspections when the turbine is already disassembled because of the repetitive nature of this inspection. This proposed AD would also expand the applicability of this AD to include additional engine models.

Costs of Compliance

We estimate that this proposed AD affects 3,769 engines installed on aircraft of U.S. registry. We also estimate that it would take about 1 hour per engine to comply with the recurring inspection requirement of this AD. We estimate that about 19 engines will require an inspection following a hot start, and that it would take about 27 hours per engine to perform that inspection. The average labor rate is \$85 per hour. Based on these figures, we estimate the cost of this proposed AD on U.S. operators to be \$363,970.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Amend § 39.13 by removing airworthiness directive (AD) 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012), and adding the following new AD:

Rolls-Royce Corporation (Type Certificate previously held by Allison Engine

Company and Allison Gas Turbine Division of General Motors): Docket

No. FAA-2011-0961; Directorate Identifier 2011-NE-22-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012).

(c) Applicability

This AD applies to Rolls-Royce Corporation (RRC) 250-B17, -B17B, -B17C, -B17D, -B17E, -B17F, -B17F/1, -B17F/2 turboprop engines; and RRC 250-C20, -C20B, -C20F, -C20J, -C20R, -C20R/1, -C20R/2, -C20R/4, -C20S and -C20W turboshaft engines with 3rd-stage turbine wheel, part number (P/N) 23065818, and 4th-stage turbine wheel, P/N 23055944, installed.

(d) Unsafe Condition

This AD was prompted by investigations that revealed that not all 3rd-stage and 4th-stage turbine wheel blade failures were identified by the one-time inspections required by AD 2012-14-06, Amendment 39-17120 (77 FR 40479, July 10, 2012). We determined that to address the unsafe condition, repetitive inspections are required, triggered by hours since last inspection (HSLI) or any hot start event. We are issuing this AD to prevent failure of 3rd-stage and 4th-stage turbine wheel blades, which could cause engine failure and damage to the aircraft.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done. After the effective date of this AD:

(1) Within 1,750 HSLI, remove the affected turbine wheels and perform a visual inspection and a fluorescent-penetrant inspection (FPI) on the removed turbine wheels for cracks at the trailing edge of the turbine blades near the fillet at the rim.

(2) Any time there is a hot start, immediately perform a visual inspection and an FPI on the affected turbine wheels for cracks at the trailing edge of the turbine blades, near the fillet at the rim.

(3) Any time the power turbine is disassembled, perform a visual inspection and an FPI on the affected turbine wheels for cracks at the trailing edge of the turbine blades, near the fillet at the rim.

(4) Thereafter, re-inspect every 1,750 HSLI.

(5) Do not return to service any turbine wheels that have cracks detected.

(f) Definition

For the purpose of this AD, an engine hot start is any time the turbine temperature exceeds 1,490 °F for 10 seconds or more, or exceeds 1,700 °F for any duration.

(g) Alternative Methods of Compliance (AMOCs)

The Manager, Chicago Aircraft Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(h) Related Information

(1) For more information about this AD, contact John Tallarovic, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-8180; fax: 847-294-7834; email: john.m.tallarovic@faa.gov.

(2) RRC Alert Commercial Engine Bulletin (CEB) No. CEB-A-1407, Revision 3, dated May 19, 2014, and CEB No. CEB-A-72-4098, Revision 3, dated May 19, 2014 (combined into one document), which are not incorporated by reference in this AD, can be obtained from RRC, using the contact information in paragraph (h)(3) of this AD.

(3) For service information identified in this AD, contact Rolls-Royce Corporation Customer Support, 450 South Meridian Street, Indianapolis, IN 46225-1103; phone: 888-255-4766 or 317-230-2720; email: helicoptercustsupp@rolls-royce.com; Internet: www.rolls-royce.com.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on September 23, 2014.

Colleen M. D'Alessandro,
Assistant Directorate Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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